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PATENT & TRADEMARK OFFICE
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: P. Devon Taylor et al.

Title: Communication Interface for Providing Accounting Support for Print Services

Docket No.: 1565.028US1
Filed: September 7, 1999
Examiner: Unknown
Customer No.: 21186

Serial No.: 09/390954
Due Date: N/A
Group Art Unit: 2761
Confirmation No.:

Commissioner for Patents
Attn: Jackie Waldo (TC 3600)
P.O. Box 1450
Alexandria, VA 22313-1450

RECEIVED
OCT 22 2003
GROUP 3600

We are transmitting herewith the following attached items (as indicated with an "X"):

X A return postcard.
X A Request For Reonstruction of Patent Application (4 Pages).
X A complete copy of Prosecution History for US Application No. 09/390,954 (78 pgs.).

Please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
Customer Number 21186

By: _____
Atty: Joseph P. Mehrle
Reg. No. 45,535

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner for Patents, Attn: Jackie Waldo (TC 3600), P.O.Box 1450, Alexandria, VA 22313-1450, on this 17th day of October, 2003.

Amy Moriarty
Name

_____
Signature

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. Customer Number 21186
(GENERAL)

S/N 09/390954 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT & TRADEMARK OFFICE OCT 20 2003

Applicant: F. Devon Taylor et al. Examiner: Unknown
Serial No.: 09/390954 Group Art Unit: 2761
Filed: September 7, 1999 Docket: 1565.028US1
Title: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES

RECEIVED OCT 22 2003 GROUP 3600

REQUEST FOR RECONSTRUCTION OF PATENT APPLICATION

Commissioner for Patents
Attn: Jackie Waldo (TC 3600)
P.O.Box 1450
Alexandria, VA 22313-1450

Applicants have not received an action of any kind in connection with U.S. Patent Application Serial Number 09/390954. Correspondingly, in January of 2003 Applicants submitted a status inquiry. After still not receiving a response, the Applicants' representative began regularly contacting the Patent Office to determine the status of this application in May 2003. In October of 2003, Examiner John Weiss indicated that the application had been lost in the Patent Office and that all the Patent Office had was the original filing in an imaged format. He then issued a reconstruction request and directed Applicants' representative to Ms. Jacqueline Waldo, responsible for collecting the missing information from the Applicants.

Applicants' representative called Ms. Waldo and indicated that since the filing a number of activities have been filed with the Patent Office, namely a change of correspondence address and a revocation of the previous power of attorney along with an appointment of a new power of attorney. Accordingly, Ms. Waldo asked the Applicants to submit this correspondence along with all communications received from the Patent Office on this application and all correspondences filed with the Patent Office on this application.

Therefore, attached herewith are the complete correspondences made between Applicants and the Patent Office with respect to this application, including postcard receipts received from the Patent Office. Applicants respectfully request that this application be immediately reconstructed based on the attached and forwarded to an Examiner for immediate examination. This application has a filing date that is over 4 years old and is still not assigned to an Examiner for examination. Detailed below is a complete chronology of the correspondences and a true and original copies of the same are attached for the Patent Office's records. Applicants believe that

everything should now be in order and respectfully request that the Patent Office inform the Applicants of the same along with an indication that this application has been submitted to an Examiner for immediate examination.

Accordingly, applicants hereby petition to reconstruct the file history of the above-identified patent application by submission of copies of the following documents:

PROSECUTION TIMELINE

Date	Action (Applicant and/or PTO)
September 7, 1999	Application Filed (Pgs 1-18 and a 1 page cover sheet) Informal Drawings (3pgs) Application Transmittal (2pgs) Copy of the Express mail label and Postcard(2 pgs) Copy of PTO stamped return Postcard (1pg.).
September 23, 1999	Filing Receipt Mailed by the PTO (2pgs)
September 24, 1999	Notice of Missing Parts Mailed by the PTO (1pg.)
October 14, 1999	Response to Missing Parts Filed (2pgs) Declaration and Power of Attorney (3pgs). Assignment filed (4 pgs. and a 1 page cover sheet) Missing Parts Transmittal, a copy of the checks to cover the Missing Parts fees, a copy of the Express Mail Label, and Postcard (4pgs). A copy of PTO stamped return Postcard (1pg).
October 21, 1999	Corrected Filing Receipt Mailed by the PTO (2pgs).
January 7, 2000	Recorded Assignment mailed by the PTO (7pgs).

February 2, 2000	Information Disclosure Statement Filed (2pgs) 1449 (4pgs) A copy of the Express Mail Label and Postcard (2 pgs.) A copy of the PTO stamped return Postcard (1pg.)
August 28, 2001	Supplemental Disclosure Statement Filed (2pgs) 1449 (1pg) A copy of the Express Mail Label and Postcard (2 pgs.) A copy of the PTO stamped return Postcard (1pg.)
April 30, 2002	Change of Address filed by Applicant (2pgs) A copy of the Postcard (1 pg). A copy of PTO stamped returned postcard (1pg.)
September 26, 2002	Revocation and Power of Attorney Filed (with Change of Correspondence Address) (3pgs) A copy of the postcard and Transmittal (2pgs) A copy of PTO stamped returned postcard (1pg.)
January 22, 2003	Status Inquiry Filed (1pg). A copy of the postcard and Transmittal (2pgs). A copy of PTO stamped returned postcard (1pg.)

Copies of the documents identified in the preceding paragraph comprise the entire file history of U.S. Patent Application Serial No. 09/390954, to the best knowledge of Applicants' Representatives.

Applicant respectfully requests notification of reconstruction of the instant application and of the occurrence of the initial patent examination process. The U.S. Patent Office is invited to telephone Applicant's attorney ((513) 942-0224) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

F. DEVON TAYLOR ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(513) 942-0224

Date 10-17-03 By Joseph P. Mehrle
Joseph P Mehrle
Reg. No. 45,535

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner for Patents Attn: Jackie Waldo (TC 3600), P.O.Box 1450, Alexandria, VA 22313-1450 on this 17th day of October, 2003.

Amy Moriarty
Name

Signature

In re Patent Application of: F. Devon Taylor, et. al.
Title: Communication Interface for Providing Accounting Support for Print Services
Serial No.: 09/390,954 Filing Date: September 7, 1999

Receipt is hereby acknowledged for the following in the United States Patent and Trademark Office:

CONTENTS: Status Inquiry (1 Page); a Return Postcard and TRANSMITTAL SHEET.

Mailed: January 22, 2003
JPM/lmp

Docket No.: 1565.028US1
Due Date: N/A

RECEIVED
OCT 22 2003
GROUP 3600

In re Patent Application of: F. Devon Taylor, et. al.
Title: Communication Interface for Providing Accounting Support for Print Services
Serial No.: 09/390,954 Filing Date: September 7, 1999

Receipt is hereby acknowledged for the following in the United States Patent and Trademark Office:

CONTENTS: Status Inquiry (1 Page); a Return Postcard and TRANSMITTAL SHEET.

Mailed: January 22, 2003
JPM/lmp

Docket No.: 1565.028US1
Due Date: N/A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	F. Devon Taylor, et. al.
Title:	Communication Interface for Providing Accounting Support for Print Services

Docket No.:	1565.028US1	Serial No.:	09/390,954
Filed:	September 7, 1999	Due Date:	N/A
Examiner:	Unknown	Group Art Unit:	Unknown

Commissioner for Patents
Washington, D.C. 20231

We are transmitting herewith the following attached items (as indicated with an "X"):

X A return postcard.
X Status Inquiry (1 Page).

Please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938, Minneapolis, MN 55402 (612-373-6900)

By: Joseph P. Mehrle
Atty: Joseph P. Mehrle
Reg. No. 45,535

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231, on this 22ND day of January, 2003.

LISA POSORSKE
Name

Lisa Posorske
Signature

Customer Number 21186
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. Box 2938, Minneapolis, MN 55402 (612-373-6900)
(GENERAL)

S/N 09/390954 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	F. D. Taylor et al.	Examiner: Unknown
Serial No.:	09/390954	Group Art Unit: Unknown
Filed:	September 7, 1999	Docket: 1565.028US1
Title:	COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES	

STATUS INQUIRY

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

The above-identified patent application was filed on September 7, 1999. Applicants' last communication from the Patent Office was the Notice of Recordation of Assignment dated January 7, 2000.

Kindly inform us as to the status of this application, directing such notice to the attention of the below-signed attorney for Applicants.

Respectfully submitted,

F. D. TAYLOR ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6911

Date 1-21-03 By Joseph P. Mehrle
Joseph P. Mehrle
Reg. No. 45,535

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 22ND day of January, 2003.

Name LISA POSORSKE Signature Lisa Posorske

Receipt is hereby acknowledged for the following in the United States Patent and Trademark Office:

In re application of F. Devon Taylor, et al.
Title: Communication Interface for Providing Accounting Support for Print Services
Serial No. 09/390,954
Filed: September 7, 1999

CONTENTS: Revocation and Power of Attorney (2 pages); Change of Correspondence Address (1 page); and transmittal document (1 pg.).

JPM:CMG:slr
Mailed: September 26, 2002

Docket: 1565.028US1

Receipt is hereby acknowledged for the following in the United States Patent and Trademark Office:

In re application of F. Devon Taylor, et al.
Title: Communication Interface for Providing Accounting Support for Print Services
Serial No. 09/390,954 Filed: September 7, 1999

CONTENTS: Revocation and Power of Attorney (2 pages); Change of Correspondence Address (1 page); and transmittal document (1 pg.).

JPM:CMG:slr Docket: 1565.028US1
Mailed: September 26, 2002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: F. Devon Taylor, et al.

Title: Communication Interface for Providing Accounting Support for Print Services

Docket No.: 1565.028US1
Filed: September 7, 1999
Examiner: Unknown

Serial No.: 09/390,954
Due Date: N/A
Group Art Unit: 2761

Commissioner for Patents
Washington, D.C. 20231

We are transmitting herewith the attached:

X Revocation and Power of Attorney (2 pages)

X Change of Correspondence Address (1 page).

X A return postcard.

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938, Minneapolis, MN 55402 (612-373-6900)

By: Joseph P. Mehrle
Name: Joseph P. Mehrle
Reg. No. 45,535
JPM:CMG:slr

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231, on this 26th day of September, 2002.

Sarah L. Reinhard
Name

Sarah L. Reinhard
Signature

S/N 09/390,954 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	F. Devon Taylor et al	Examiner: NYA	
Serial No.:	09/390,954	Group Art Unit: 2761	
Filed:	September 7, 1999	Docket: 1565.028US1	
Title:	COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES		

REVOCATION AND POWER OF ATTORNEY CERTIFICATE UNDER 37 CFR '3.73(b)

Commissioner for Patents
Washington, D.C. 20231

In accordance with 37 C.F.R. Section 1.36, M.P.E.P. Section 402.05 and 402.07, please revoke any existing Powers of Attorney, if any, and appoint the following attorneys and/or patent agents to prosecute this application and to transact all business in the Patent and Trademark Office in connection therewith:

Anglin, J. Michael	Reg. No. 24,916	LeMoine, Dana B.	Reg. No. 40,062
Arora, Suneel	Reg. No. 42,267	Lundberg, Steven W.	Reg. No. 30,568
Beekman, Marvin L.	Reg. No. 38,377	Maki, Peter C.	Reg. No. 42,832
Berdie, Raymond R.	Reg. No. 50,769	Malen, Peter L.	Reg. No. 44,894
Bianchi, Timothy E.	Reg. No. 39,610	Mates, Robert E.	Reg. No. 35,271
Billion, Richard E.	Reg. No. 32,836	McCrackin, Ann M.	Reg. No. 42,858
Black, David W.	Reg. No. 42,331	McGough, Kevin J.	Reg. No. 31,279
Brennan, Thomas F.	Reg. No. 35,075	McTavish, Hugh E.	Reg. No. 48,341
Brooks, Edward J., III	Reg. No. 40,925	Mehrle, Joseph P.	Reg. No. 45,535
Chadwick, Robin A.	Reg. No. 36,477	Moore, Charles L., Jr.	Reg. No. 33,742
Clark, Barbara J.	Reg. No. 38,107	Muller, Mark V.	Reg. No. 37,509
Clise, Timothy B.	Reg. No. 40,957	Nama, Kash	Reg. No. 44,255
Cochran, David R.	Reg. No. 46,632	Nelson, Albin J.	Reg. No. 28,650
Dahl, John M.	Reg. No. 44,639	Nielsen, Walter W.	Reg. No. 25,539
Drake, Eduardo E.	Reg. No. 40,594	Padys, Danny J.	Reg. No. 35,635
Embretson, Janet E.	Reg. No. 39,665	Parker, J. Kevin	Reg. No. 33,024
Forrest, Bradley A.	Reg. No. 30,837	Perdok, Monique M.	Reg. No. 42,989
Gamon, Owen J.	Reg. No. 36,143	Peret, Andrew R.	Reg. No. 41,246
Gorrie, Gregory J.	Reg. No. 36,530	Peterson, David C.	Reg. No. 47,857
Gortych, Joseph E.	Reg. No. 41,791	Prout, William F.	Reg. No. 33,995
Greaves, John N.	Reg. No. 40,362	Schumm, Sherry W.	Reg. No. 39,422
Haack, John L.	Reg. No. 36,154	Schwegman, Micheal L.	Reg. No. 25,816
Harris, Robert J.	Reg. No. 37,346	Speier, Gary J.	Reg. No. 45,458
Jackson Huebsch, Katharine A.	Reg. No. 47,670	Steffey, Charles E.	Reg. No. 25,179
Jurkovich, Patti J.	Reg. No. 44,813	Stordal, Leif T.	Reg. No. 46,251
Kalis, Janal M.	Reg. No. 37,650	Terry, Kathleen R.	Reg. No. 31,884
Klima-Silberg, Catherine I.	Reg. No. 40,052	Tong, Viet V.	Reg. No. 45,416
Kluth, Daniel J.	Reg. No. 32,146	Viksnins, Ann S.	Reg. No. 37,748
Lacy, Rodney L.	Reg. No. 41,136	Woessner, Warren D.	Reg. No. 30,440
Lemaire, Charles A.	Reg. No. 36,198		

Patrick McBride Reg. No. 39,295 Novell, Inc., Intellectual Property Counsel
Novell, Inc. 1800 South Novell Place, Mailstop PRV F331, Provo, Utah 84606

CERTIFICATE UNDER 37 CFR '3.73(b)

Novell , Inc. hereby certifies that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of an assignment from the inventors filed 10/14/1999 and recorded on Reel 010302, Frames 0406 - 0410.

To the best of my knowledge and belief, title is in Novell , Inc., the assignee.

Pursuant to 37 C.F.R. '3.73(b) I hereby declare that I, Mr. Ryan Richards, am empowered to sign this certificate on behalf of Novell , Inc., the assignee.

I hereby declare that all statement made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true.

Please direct all correspondence in this case to:

Schwegman, Lundberg, Woessner & Kluth, P.A.
P.O. Box 2938
Minneapolis, MN 55402
Telephone No. (612) 373-6900

Date 8/12/02

By _____
Ryan Richards
Title: Vice President, Deputy General Counsel

S/N 09/390,954

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	F. Devon Taylor, et al.	Examiner: Unknown
Serial No.:	09/390,954	Group Art Unit: 2761
Filed:	September 7, 1999	Docket: 1565.028US1
Title:	COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES	

NOTIFICATION OF CHANGE OF CORRESPONDENCE ADDRESS

Commissioner for Patents
Washington, D.C. 20231

Applicant respectfully requests that all future correspondence in the above-identified patent application be addressed to:

Customer Number 21186, whose address is:

Schwegman, Lundberg, Woessner & Kluth, P.A.
P. O. Box 2938
Minneapolis, MN 55402

Respectfully submitted,

By Applicant's Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(513) 942-0224

Date 9-26-02 By Joseph P. Mehrle
Joseph P. Mehrle
Reg. No. 45,535

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 26th day of September, 2002.

Name Sarah L. Reinhard Signature Sarah L. Reinhard

N/A ASJ

Date Due: n/a
Date Mailed: 4/30/02
Date Filed: September 7, 1999
Inventor(s): F. Devon Taylor et al.

File No.: 112024-0051
Serial No.: 09/390,954
Group Art Unit: 2761

Title: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SER\

Honorable Commissioner of Patents and Trademarks: We are forwarding herewith:

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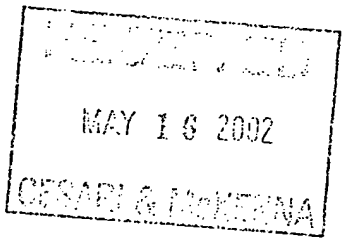

Date Due: n/a
Date Mailed: 4/30/02
Date Filed: September 7, 1999
Inventor(s): F. Devon Taylor et al.

File No.: 112024-0051
Serial No.: 09/390,954
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Title: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SER\

Honorable Commissioner of Patents and Trademarks: We are forwarding herewith:

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Initials: ASJ/caw
With First Class Certificates of Mailing

CESARI and McKENNA, LLP

PATENTS
112024-0051

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: F. Devon Taylor et al.	)	
	)	Examiner: Not Yet Assigned
Serial No.: 09/390,954	)	
Filed: September 7, 1999	)	Art Unit: 2761
For: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES	)	

Cesari and McKenna, LLP
88 Black Falcon Avenue
Boston, MA 02210
April 30, 2002

CERTIFICATE OF MAILING

I hereby certify that the following paper is being deposited with the United States Postal Service as first-class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231, on April 30, 2002.

Cheryl A. Wallace

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

CHANGE OF CORRESPONDENCE ADDRESS

Pursuant to 37 C.F.R. §1.33(a), we request that the correspondence address for the above-identified patent application be changed to:

Charles J. Barbas
Cesari and McKenna, LLP
88 Black Falcon Avenue
Boston, MA 02210

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

A. Sidney Johnston
Reg. No. 29,548
CESARI AND MCKENNA, LLP
88 Black Falcon Avenue
Boston, MA 02210-2414
(617) 951-2500

N/A ASJ

Date Due: N/A
Date Mailed: 8/28/01
Date Filed: September 7, 1999
Inventor(s): F. Devon Taylor et al.
Title: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICI

File No.: 112024-0051
Serial No.: 09/390,954
Group Art Unit: 2761

Honorable Commissioner of Patents and Trademarks: We are forwarding herewith:

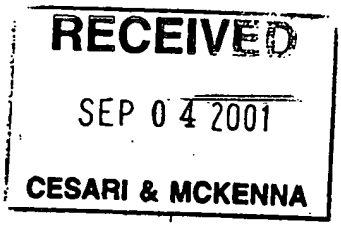
_X_ Information Disclosure Statement

_X_ PTO-1449 and Copies of References

Kindly have the mail room stamp this card and return it to us so that we may know that the above mentioned papers were duly received.

Initials: ASJ/cab
With Express Certificates of Mailing : EL736448421US

CESARI and McKENNA, LLP



Date Due: N/A
Date Mailed: 8/28/01
Date Filed: September 7, 1999
Inventor(s): F. Devon Taylor et al.
Title: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICI

File No.: 112024-0051
Serial No.: 09/390,954
Group Art Unit: 2761

Honorable Commissioner of Patents and Trademarks: We are forwarding herewith:

_X_ Information Disclosure Statement

_X_ PTO-1449 and Copies of References

Kindly have the mail room stamp this card and return it to us so that we may know that the above mentioned papers were duly received.

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Federal Agency Acct. No. or Postal Service Acct. No.

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CESARI & MCKENNA LLP
88 BLACK FALCON AVE
BOSTON MA 02210-2414

112024-51/ASJ

TO: (PLEASE PRINT) PHONE ( )

ASSISTANT COMMISSIONER FOR
PATENTS
WASHINGTON DC 20231-0001

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[redacted]

PATENTS
112024-0051

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of:
F. Devon Taylor et al.

Serial No.: 09/390,954

Filed: September 7, 1999

For: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES

Examiner: Not Yet Assigned

Art Unit: 2761

Cesari and McKenna, LLP
88 Black Falcon Avenue
Boston, MA 02210
August 28, 2001

EXPRESS-MAIL DEPOSIT

"Express Mail" Mailing-Label Number: EL736448421US

The following papers are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service pursuant to 37 C.F.R. §1.10:

_X_ Information Disclosure Statement

_X_ PTO-1449 and Copies of References

PATENTS
112024-0051

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: F. Devon Taylor et al.	)	
	)	Examiner: Not Yet Assigned
Serial No.: 09/390,954	)	
Filed: September 7, 1999	)	Art Unit: 2761
For: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES	)	

Cesari and McKenna, LLP
88 Black Falcon Avenue
Boston, MA 02210
August 28, 2001

"Express Mail" Mailing-Label Number: EL736448421US

Honorable Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

INFORMATION-DISCLOSURE STATEMENT

In keeping with the duty of candor and good faith owed to the Patent and Trademark Office, the Applicants wish to bring to the Examiner's attention the references listed on the accompanying form PTO-1449. A copy of each listed reference is enclosed.

To the extent required by 37 C.F.R. §1.98(a)(3), Applicants have described what they consider to be the relevance of any foreign-language reference. It is understood that the Office may find additionally relevant material in these or other references.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

A. Sidney Johnston
Reg. No. 29,548
CESARI AND MCKENNA, LLP
88 Black Falcon Avenue
Boston, MA 02210-2414
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	09/390,954
Filing Date	September 7, 1999
First Named Inventor	F. Devon Taylor et al.
Group Art Unit	2761
Examiner Name	Not Yet Assigned
Attorney Docket Number	112024-0051

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Document Number	U.S. Patent Document Kind Code[2] (*if known*)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	6,101,500	B1	To-Choi Lau	08/08/2000	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Office[3]	Foreign Patent Document Number[4]	Foreign Patent Document Kind Code[5] (*if known*)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	

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[1] Unique citation designation number. [2] See attached Kinds of U.S. Patent Documents. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark hee if English language Translation is attached.

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CTB n/a 2/10/00

Date Due: N/A
Date Mailed: February 2, 2000
Date Filed: September 7, 1999
Inventor(s): F. Devon Taylor et al.
Title: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICI

File No.: 112024-0051
Serial No.: 09/390,954
Group Art Unit: 2761

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CESARI AND McKENNA

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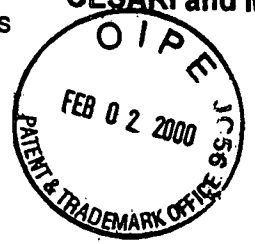

Date Due: N/A
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Serial No.: 09/390,954
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Title: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICI

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PATENTS
112024-0051

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: F. Devon Taylor et al.	)	
	)	Examiner: Not Yet Assigned
Serial No.: 09/390,954	)	
Filed: September 7, 1999	)	Art Unit: 2761
For: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES	)	

Cesari and McKenna, LLP
30 Rowes Wharf
Boston, MA 02110
February 2, 2000

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Honorable Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

INFORMATION-DISCLOSURE STATEMENT

In keeping with the duty of candor and good faith owed to the Patent and Trademark Office, Applicants wish to bring to the Examiner's attention the references listed on the accompanying form PTO-1449. A copy of each listed reference is enclosed.

To the extent required by 37 C.F.R. §1.98(a)(3), Applicants have described what they consider to be the relevance of any foreign-language reference. It is understood that the Office may find additionally relevant material in these or other references.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

Christopher K. Gagne
Reg. No. 36,142
CESARI AND MCKENNA, LLP
30 Rowes Wharf
Boston, MA 02110-2699
(617) 951-2500

Form PTO-1449	Docket No: 112024-0051	Serial No. 09/390,954
INFORMATION-DISCLOSURE	Applicant: F. Devon Taylor et al.	
STATEMENT	Filed: September 7, 1999	Group 2761

U. S. Patent Documents

Ex.		Doc. No.	Date	Name	Class	Subcl.	Filed

Foreign Patent Documents

			Date	Country	Class	Subcl.	Filed

OTHER DOCUMENTS (Including Author, Title, Date, Pages, Etc)

			Mark McKell et al., *An Introduction to Novell Distributed Print Services (NDPS)*, April 1998, pages 3-13.
			Mark McKell, *Printing in NetWare 5 with NDPS 2.0*, September 1998, pages 81-96.
			Bob Ross, et al., NetWare Print Services, Technical Development Conferences, 3-92, pages API-8 – API-14.
			Spencer Cottam, et al., *Optimizing Printing with NetWare 4.x and 3.1x*, September 1993, pages 1-17.

Examiner:	Date Considered:

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-1449 INFORMATION-DISCLOSURE STATEMENT	Docket No: 112024-0051	Serial No. 09/390,954
	Applicant: F. Devon Taylor et al.	
	Filed: September 7, 1999	Group 2761

U. S. Patent Documents

Ex.		Doc. No.	Date	Name	Class	Subcl.	Filed

Foreign Patent Documents

			Date	Country	Class	Subcl.	Filed

OTHER DOCUMENTS (Including Author, Title, Date, Pages, Etc)

			Scott Isaacson, *NetWare Distributed Print Services (NDPS) Architecture Overview*, 1996, pages 67-73.
			Edward Liebing, *NetWare 4 Printing From the Ground Up*, September/October 1995, pages 32-43.
			Edward Liebing, *NetWare 4.1 Print Services, An Architectural Overview*, July/August 1995, pages 44-51.
			Edward Liebing, et al., *Understanding and Troubleshooting Novell's Print Services*, May 1992, pages 1-20.

Examiner:	Date Considered:

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-1449 INFORMATION-DISCLOSURE STATEMENT	Docket No: 112024-0051	Serial No. 09/390,954
	Applicant: F. Devon Taylor et al.	
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U. S. Patent Documents

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Foreign Patent Documents

			Date	Country	Class	Subcl.	Filed

OTHER DOCUMENTS (Including Author, Title, Date, Pages, Etc)

			Craig Whittle, *NetWare Distributed Print Services (NDPS) Server Architecture and Information Model*, 1996, pages 82-88.
			Roy Studyvin, *Developing Smart Client Applications for NetWare Distributed Print Services (NDPS)*, 1996, pages 98-101.
			Dale Bethers, *NDPS Interoperability Issues with Legacy Printing Systems and Printers*, 1996, pages 104-108.
			Roy Studyvin, et al., *Adding Value to Applications Using NetWare Distributed Print Services (NDPS)*, 1996, pages 76-80.

Examiner:	Date Considered:

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-1449 INFORMATION-DISCLOSURE STATEMENT	Docket No: 112024-0051	Serial No. 09/390,954
	Applicant: F. Devon Taylor et al.	
	Filed: September 7, 1999	Group 2761

U. S. Patent Documents

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Foreign Patent Documents

			Date	Country	Class	Subcl.	Filed

OTHER DOCUMENTS (Including Author, Title, Date, Pages, Etc)

			Hugo Parra, *NDPS Brokered Services for the Smart Global Network*, 1996, pages 90-96.

Examiner:	Date Considered:

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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CHARLES J. BARBAS, ESQ.
30 ROWES WHARF
BOSTON, MASSACHUSETTS 02110

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BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:
TAYLOR, DEVON

DOC DATE: 10/08/1999

ASSIGNOR:
DAHNEKE, BART

DOC DATE: 10/08/1999

ASSIGNOR:
BETHERS, DALE

DOC DATE: 10/08/1999

ASSIGNOR:
CHRISTENSEN, BRAD P.

DOC DATE: 10/13/1999

ASSIGNEE:
NOVELL, INC.
122 EAST 1700 SOUTH
PROVO, UTAH 84606-6194

SERIAL NUMBER: 09390954
PATENT NUMBER:

FILING DATE: 09/07/1999
ISSUE DATE:

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1. Name of conveying party(ies):

Devon Taylor
Bart Dahneke
Dale Bethers
Brad P. Christensen

OIPE JC42 OCT 14 1999 PATENT & TRADEMARK OFFICE

Additional name(s) of conveying party(ies) attached?_____ Yes ___X___ No

2. Name and address of receiving party(ies):

Name: Novell, Inc.

Street Address: 122 East 1700 South

City: Provo

State: Utah Zip: 84606-6194

Additional name(s) & address(es) attached?_____Yes ___X___No

3. Nature of conveyance: MRD 10.14.99

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_____ Security Agreement
_____ Change of Name
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Execution Dates: 10/08/99 and 10/13/99

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s)

09/390,954

B. Patent No. (s)

Additional numbers attached?_____Yes___X___No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Charles J. Barbas, Esq.
CESARI AND MCKENNA, LLP
Street Address:
30 Rowes Wharf
City: Boston State: MA Zip: 02110

6. Total number of applications and patents involved:.....1

7. Total fee (37 CFR 3.41) $40.00
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To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Charles J. Barbas, 32,959

10-14-99
Date

Total number of pages comprising cover sheet:

ASSIGNMENT

Whereas We, F. Devon Taylor, who reside at 1195 North 730 East, Pleasant Grove, UT 84062, , Bart Dahneke, who reside at 1467 West 1500 North, Provo, Utah 84604, , Dale J Bethers, who reside at 4162 West 9860 North, Pleasant Grove, Utah 84062, , and Brad P. Christensen, who reside at 625 East 100 North, Alpine, Utah 84004, , have made certain inventions or discoveries (or both) set forth in an application for Letters Patent of the United States of America entitled COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES, identified by Cesari and McKenna File No. 112024-0051, the specification of which was filed on September 7, 1999, and accorded Serial Number 09/390,954; and

Whereas Novell, Inc., whose address is 122 East 1700 South, Provo, Utah 84606-6194, and which, together with its successors and assigns, is hereinafter called "Assignee," is desirous of acquiring the title, rights, benefits, and privileges hereinafter recited;

Now, Therefore, for valuable consideration furnished by Assignee to us, receipt and sufficiency of which we hereby acknowledge, we hereby, without reservation:

1. Assign, transfer, and convey to Assignee our entire right, title, and interest in and to said inventions and discoveries, said application for Letters Patent of the United States of America, any and all other applications for Letters Patent on said inventions and discoveries in whatsoever countries, including all divisional, renewal, substitute, continuation, continuation-in-part, and Convention applications based in whole or in part upon said inventions or discoveries, or upon said applications, and any and all Letters Patent, reissues, reexaminations, and extensions of Letters Patent granted for said inventions and discoveries or upon said applications, and every priority right that is or may be predicated upon or arise from said inventions, said discoveries, said applications, and said Letters Patent;

2. Authorize Assignee to file patent applications in any or all countries on any or all of said inventions and discoveries in our names or in the name of Assignee or otherwise as Assignee may deem advisable, under the International Convention or otherwise;

3. Authorize and request the Commissioner of Patents and Trademarks of the United States of America and the empowered officials of all other governments to issue or transfer all said Letters Patent to Assignee, as assignee of the entire right, title, and interest therein or otherwise as Assignee may direct;

4. Warrant that we have not knowingly conveyed to others any right in said inventions, discoveries, applications, or patents or any license to use the same or to make, use, or sell anything embodying or utilizing any of said inventions or discoveries; and that we have good right to assign the same Assignee without encumbrance;

5. Bind our heirs, legal representatives and assigns, as well as ourselves, to do, upon Assignee's request and at Assignee's expense, but without additional consideration to us or them, all acts reasonably serving to assure that the said inventions and discoveries, the said patent applications, and the said Letters Patent shall be held and enjoyed by Assignee as fully and entirely as the same could have been held and enjoyed by us, our heirs, legal representatives, and assigns if this assignment had not been made;

and particularly to execute and deliver to Assignee all lawful application documents including petitions, specifications, and oaths, and all assignments, disclaimers, and lawful affidavits in form and substance as may be requested by Assignee; to communicate to Assignee all facts known to us relating to said inventions and discoveries or the history thereof; and to furnish Assignee with any and all documents, photographs, models, samples, and other physical exhibits in our control or in the control of our heirs, legal representatives or assigns which may be useful for establishing the facts of our conceptions, disclosures, and reduction to practice of said inventions and discoveries.

In testimony of which we have executed this Assignment as an instrument under seal on the dates indicated next to our names.

10-8-99
Date

F. Devon Taylor
F. Devon Taylor, Inventor

State of Utah)
)ss.
County of Utah)

On this 8TH day of October, 1999, before me appeared F. Devon Taylor, to me known and known to me to be the person described in and who executed the foregoing instrument, and he acknowledged the same to be his free act and deed.

PAULA N LINDSAY
Notary Public
State of Utah
My Comm. Expires May 20, 2003
[seal]

Paula N Lindsay
Notary Public

10-8-99
Date

Bart Dahneke, Inventor

State of Utah)
)ss.
County of Utah)

On this 8th day of October, 1999, before me appeared Bart Dahneke, to me known and known to me to be the person described in and who executed the foregoing instrument, and he acknowledged the same to be his free act and deed.

[seal]

Notary Public

8 Oct 99
Date

Dale J Bethers, Inventor

State of Utah)
)ss.
County of Utah)

On this 8th day of October, 1999, before me appeared Dale J Bethers, to me known and known to me to be the person described in and who executed the foregoing instrument, and he acknowledged the same to be his free act and deed.

PAULA N LINDSAY
Notary Public
State of Utah
My Comm. Expires May 20, 2003
122 E 1700 So Provo UT 84606
[seal]

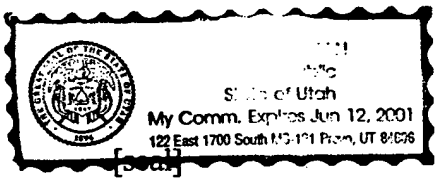
Notary Public

10/13/99
Date

Brad P. Christensen, Inventor

State of Utah)
)ss.
County of Utah)

On this 13th day of October, 1999, before me appeared Brad P. Christensen, to me known and known to me to be the person described in and who executed the foregoing instrument, and he acknowledged the same to be his free act and deed.



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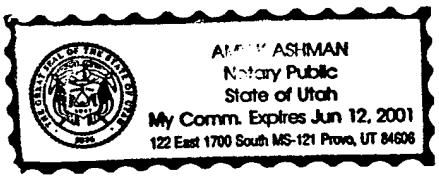

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CHARLES J BARBAS
CESARI AND MCKENNA
30 ROWES WHARF
BOSTON MA 02110

DATE RECEIVED
OCT 25 1999
CESARI AND McKENNA

CJB
N/A 10/25/99

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts of Application" ("Missing Parts Notice") in this application, please submit any corrections to this Filing Receipt with your reply to the "Missing Parts Notice." When the PTO processes the reply to the "Missing Parts Notice," the PTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s) F. DEVON TAYLOR, PLEASANT GROVE, UT; BART DAHNEKE, PROVO, UT; DALE J. BETHERS, PLEASANT GROVE, UT; BRAD P. CHRISTENSEN, ALPINE, UT.

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TITLE
COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES

PRELIMINARY CLASS: 705

DATA ENTRY BY: DILLON, LAWANDA TEAM: 03 DATE: 10/21/99

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Date Due: 11/24/99
Date Mailed: 10/14/99
Date Filed: September 7, 1999
Inventor(s): F. Devon Taylor et al.
Title: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES

File No.: 112024-0051
Serial No.: 09/390,954
Group Art Unit: 2761

Honorable Commissioner of Patents and Trademarks: We are forwarding herewith:

X Declaration and Power of Attorney	X Fee Transmittal Letter
X Assignment With Recordation Form Cover Sheet	X Check No. 18110 for $890.00
X Form PTO-1533	X Check No. 18111 for $40.00
X Response to Notice to File Missing Parts	

Kindly have the mail room stamp this card and return it to us so that we may know that the above mentioned papers were duly received.

Initials: CJB
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CESARI and McKENNA, LLP

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OCT 20 1999
CESARI AND McKENNA

OIPE
OCT 14 1999
JC42
PATENT & TRADEMARK OFFICE

Date Due: 11/24/99
Date Mailed: 10/14/99
Date Filed: September 7, 1999
Inventor(s): F. Devon Taylor et al.
Title: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES

File No.: 112024-0051
Serial No.: 09/390,954
Group Art Unit: 2761

Honorable Commissioner of Patents and Trademarks: We are forwarding herewith:

_X_ Declaration and Power of Attorney
_X_ Assignment With Recordation Form Cover Sheet
_X_ Form PTO-1533
_X_ Response to Notice to File Missing Parts

_X_ Fee Transmittal Letter
_X_ Check No. 18110 for $890.00
_X_ Check No. 18111 for $40.00

Kindly have the mail room stamp this card and return it to us so that we may know that the above mentioned papers were duly received.

Initials: CJB
With Express Certificates of Mailing : EL024698604US

CESARI and McKENNA, LLP

CESARI AND McKENNA, LLP
30 ROWES WHARF
BOSTON, MA 02110

STATE STREET BANK
AND TRUST COMPANY
BOSTON, MA 02101 021
5-2-110

18110

18110

091013/7-95

DATE 10/14/99

AMOUNT $890.00

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TRADEMARKS
WASHINGTON, D C 20231

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CESARI AND McKENNA, LLP
30 ROWES WHARF
BOSTON, MA 02110

STATE STREET BANK
AND TRUST COMPANY
BOSTON, MA 02101 021
5-2-110

18111

18111

091013/7-95

DATE 10/14/99

AMOUNT $40.00

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THE COMMISSIONER OF PATENTS AND
TRADEMARKS
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ORIGIN (POSTAL USE ONLY)			
PO ZIP Code	Day of Delivery ☐ Next ☐ Second	Flat Rate Envelope ☐	
Date In Mo. Day Year	☐ 12 Noon ☐ 3 PM	Postage $	
Time In ☐ AM ☐ PM	Military ☐ 2nd Day ☐ 3rd Day	Return Receipt Fee	
Weight lbs. ozs.	Int'l Alpha Country Code	COD Fee	Insurance Fee
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DELIVERY (POSTAL USE ONLY)		
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Delivery Attempt Mo. Day	Time ☐ AM ☐ PM	Employee Signature
Delivery Date Mo. Day	Time ☐ AM ☐ PM	Employee Signature
Signature of Addressee or Agent X		
Name - Please Print X		

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☐ **WAIVER OF SIGNATURE** (Domestic Only): Additional merchandise insurance is void if waiver of signature is requested. I wish delivery to be made without obtaining signature of addressee or addressee's agent (if delivery employee judges that article can be left in secure location) and I authorize that delivery employee's signature constitutes valid proof of delivery.
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FROM: (PLEASE PRINT) PHONE ( )

112024-51 /DJB
CESARI & MCKENNA
30 ROWES WHARF 5TH FLOOR
BOSTON MA 02110-3326

TO: (PLEASE PRINT) PHONE ( )

BOX Missing Parts
ASST. COMMISSIONER
FOR PATENTS
WASHINGTON DC 20231-0000

2469860

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FOR PICKUP OR TRACKING CALL 1-800-222-1811 www.usps.gov

EMS

FEE TRANSMITTAL

Patent fees are subject to annual revision on October 1.
These are the fees effective October 1, 1997.
Small Entity payments must be supported by a small entity statement, otherwise large entity fees must be paid. See Forms PTO/SB/09-12.
See 37 C.F.R. §§ 1.27 and 1.28.

TOTAL AMOUNT OF PAYMENT ($) 930

Complete If Known	
Application Number	09/390,954
Filing Date	September 7, 1999
First Named Inventor	F. Devon Taylor et al.
Examiner Name	Not Yet Assigned
Group / Art Unit	2761
Attorney Docket No.	112024-0051

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

Deposit Account Number: 03-1237

Deposit Account Name: Cesari and McKenna, LLP

☒ Charge Any Additional Fee Required Under 37 C.F.R. §§1.16 and 1.17 ☐ Charge the Issue Fee Set in 37 C.F.R. §§1.18 at the Mailing of the Notice of Allowance

2. ☒ Payment Enclosed: ☒ Check ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	760	201	380	Utility filing fee	760
106	310	206	155	Design filing fee	
107	480	207	240	Plant filing fee	
108	760	208	380	Reissue filing fee	
114	150	214	75	Provisional filing fee	
				SUBTOTAL (1)	($) 760

2. EXTRA CLAIM FEES

			Extra Claims		Fee from below	=	Fee Paid
Total Claims	17	- 20** =	0	x	18	=	0
Independent Claims	3	- 3** =	0	x	78	=	0
Multiple Dependent						=	0

**or number previously paid, if greater; For Reissues, see below*

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	78	202	39	Independent claims in excess of 3
104	260	204	130	Multiple dependent claim, if not paid
109	78	209	39	**Reissue independent claims over original patent
110	18	210	9	**Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Fee Surcharge - late filing fee or oath	130
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English Specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	380	216	190	Extension for reply within second month	
117	870	217	435	Extension for reply within third month	
118	1,360	218	680	Extenstion for reply within fourth month	
128	1,850	128	925	Extension for reply within fifth month	
119	300	219	150	Notice of Appeal	
120	300	220	150	Filing a brief in support of an appeal	
121	260	221	130	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,210	241	605	Petition to revive - unintentional	
142	1,210	242	605	Utility Issue fee (or reissue)	
143	430	243	215	Design Issue fee	
144	580	244	290	Plant Issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	240	126	240	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	40
146	760	246	380	Filing a submission after final rejection (37 CFR 1.129(a))	
149	760	249	380	For each additional invention to be examined (37 CFR 1.129(b))	
				Other (specify)	
				Other fee (specify)	
				SUBTOTAL (3)	($) 170

*Reduced by Basic Filing Fee Paid

SUBMITTED BY				Complete (if applicable)	
Typed or Printed Name	Charles J. Barbas			Reg. Number	32,959
Signature		Date	October 14, 1999	Deposit Account User ID	

PATENTS
112024-0051

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of:
F. Devon Taylor et al.

Serial No.: 09/390,954

Filed: September 7, 1999

For: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES

Examiner: Not Yet Assigned

Art Unit: 2761

Cesari and McKenna, LLP
30 Rowes Wharf
Boston, MA 02110
October 14, 1999

"Express Mail" Mailing-Label Number: EL024698604US

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION

Enclosed in response to the Notice to File Missing Parts of Application-Filing Date Granted mailed September 24, 1999, is a Declaration for Patent Application executed by the inventors, along with a check for $890.00 to cover the filing fee and surcharge for this Response. The above-referenced application filed in the Patent and Trademark Office is the application that the inventors executed by signing the enclosed Declaration.

Also enclosed is an Assignment and a check in the amount of $40.00 to cover the recordation fee.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

Charles J. Barbas
Reg. No. 32,959
CESARI AND MCKENNA, LLP
30 Rowes Wharf
Boston, MA 02110-2699
(617) 951-2500

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below-named inventor, I hereby declare that:

My residence, post-office address, and citizenship are as stated below next to my name.

I believe I am an original, first, and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES, the specification of which was filed on September 7, 1999, and accorded Serial Number 09/390,954 .

I hereby state that I have reviewed and understand the contents of the above-identified application specification, including the claims, as amended by any amendment specifically referred to herein.

I acknowledge the duty to disclose all information known to me that is material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code §119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me on the same subject matter having a filing date before that of the application on which priority is claimed: None.

I hereby claim the benefit under Title 35, United States Code §119(e) of the following U.S. provisional application: None.

I hereby claim the benefit under Title 35, United States Code §120, of the United States Application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United State Code, §112, I acknowledge the duty to disclose all information that is material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56, and which became available to me between the filing date of the prior application and the national or PCT international filing date of this application: None.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint Michael E. Attaya, Reg. No. 31,731; Charles J. Barbas, Reg. No. 32,959; Joseph H. Born, Reg. No. 28,283; Robert A. Cesari, Reg. No. 18,381; Yong S. Choi, Reg. No. 43,324; Brian C. Dauphin, Reg. No. 40,983; Steven J. Frank, Reg. No. 33,497; Christopher K. Gagne, Reg. No. 36,142; A. Sidney Johnston, Reg. No. 29,548; William A. Loginov, Reg. No. 34,863; John F. McKenna, Reg. No. 20,912; Martin J. O'Donnell, Reg. No. 24,204; Thomas C. O'Konski, Reg. No. 26,320; Michael R. Reinemann, Reg. No. 38,280; Rita M. Rooney, Reg. No. 30,585; Heather B. Shapiro, Reg. No. 41,305; Patricia A. Sheehan, Reg. No. 32,301; and Joseph Stecewycz, Reg. No. 34,442, Cesari and McKenna, LLP, 30 Rowes Wharf, Boston, Mass. 02110, jointly, and each of them severally, my attorneys and attorney, with full power of substitution, delegation and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent and to transact all business in the Patent and Trademark Office connected therewith. Please direct all telephone calls to Charles J. Barbas at (617) 951-2500. Please address all correspondence to Charles J. Barbas.

F. Devon Taylor — 10-8-99

F. Devon Taylor — Date

Residence: 1195 North 730 East
Pleasant Grove, UT 84062

Citizenship: United States of America

Post Office Address: Same As Above

B Dahneke — 10-8-99

Bart Dahneke — Date

Residence: 1467 West 1500 North
Provo, Utah 84604

Citizenship: United States of America

Post Office Address: Same As Above

Dale J Bethers — 8 Oct 99
Dale J Bethers — Date

Residence: 4162 West 9860 North
Pleasant Grove, Utah 84062

Citizenship: United States of America

Post Office Address: Same As Above

Brad P. Christensen — 10/13/99
Brad P. Christensen — Date

Residence: 625 East 100 North
Alpine, Utah 84004

Citizenship: United States of America

Post Office Address: Same As Above

ECORDATION FORM COVER SHE
PATENTS ONLY

To the Honorable commissioner of Patents and Trademarks:
Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):

Devon Taylor
Bart Dahneke
Dale Bethers
Brad P. Christensen

Additional name(s) of conveying party(ies) attached?_____ Yes ___X___ No

2. Name and address of receiving party(ies):

Name: Novell, Inc.

Street Address: 122 East 1700 South

City: Provo

State: Utah Zip: 84606-6194

Additional name(s) & address(es) attached?_____Yes ___X___No

3. Nature of conveyance:
___X___ Assignment
_____ Merger
_____ Security Agreement
_____ Change of Name
_____ Other

Execution Dates: 10/08/99 and 10/13/99

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s)

09/390,954

B. Patent No. (s)

Additional numbers attached?_____Yes___X___No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Charles J. Barbas, Esq.
CESARI AND MCKENNA, LLP
Street Address:
30 Rowes Wharf
City: Boston State: MA Zip: 02110

6. Total number of applications and patents involved:..... 1

7. Total fee (37 CFR 3.41) $40.00
___X___ Enclosed
_____ Authorized to be charged to deposit account

8. Deposit account no. 03-1237 (Attach duplicate copy of this page if paying by deposit account)

DO NOT USE THIS SPACE

9. Statement and signature.
To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Charles J. Barbas, 32,959

10-14-99
Date

Total number of pages comprising cover sheet:

ASSIGNMENT

Whereas We, F. Devon Taylor, who reside at 1195 North 730 East, Pleasant Grove, UT 84062, , Bart Dahneke, who reside at 1467 West 1500 North, Provo, Utah 84604, , Dale J Bethers, who reside at 4162 West 9860 North, Pleasant Grove, Utah 84062, , and Brad P. Christensen, who reside at 625 East 100 North, Alpine, Utah 84004, , have made certain inventions or discoveries (or both) set forth in an application for Letters Patent of the United States of America entitled COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES, identified by Cesari and McKenna File No. 112024-0051, the specification of which was filed on September 7, 1999, and accorded Serial Number 09/390,954; and

Whereas Novell, Inc., whose address is 122 East 1700 South, Provo, Utah 84606-6194, and which, together with its successors and assigns, is hereinafter called "Assignee," is desirous of acquiring the title, rights, benefits, and privileges hereinafter recited;

Now, Therefore, for valuable consideration furnished by Assignee to us, receipt and sufficiency of which we hereby acknowledge, we hereby, without reservation:

1. Assign, transfer, and convey to Assignee our entire right, title, and interest in and to said inventions and discoveries, said application for Letters Patent of the United States of America, any and all other applications for Letters Patent on said inventions and discoveries in whatsoever countries, including all divisional, renewal, substitute, continuation, continuation-in-part, and Convention applications based in whole or in part upon said inventions or discoveries, or upon said applications, and any and all Letters Patent, reissues, reexaminations, and extensions of Letters Patent granted for said inventions and discoveries or upon said applications, and every priority right that is or may be predicated upon or arise from said inventions, said discoveries, said applications, and said Letters Patent;

2. Authorize Assignee to file patent applications in any or all countries on any or all of said inventions and discoveries in our names or in the name of Assignee or otherwise as Assignee may deem advisable, under the International Convention or otherwise;

3. Authorize and request the Commissioner of Patents and Trademarks of the United States of America and the empowered officials of all other governments to issue or transfer all said Letters Patent to Assignee, as assignee of the entire right, title, and interest therein or otherwise as Assignee may direct;

4. Warrant that we have not knowingly conveyed to others any right in said inventions, discoveries, applications, or patents or any license to use the same or to make, use, or sell anything embodying or utilizing any of said inventions or discoveries; and that we have good right to assign the same Assignee without encumbrance;

5. Bind our heirs, legal representatives and assigns, as well as ourselves, to do, upon Assignee's request and at Assignee's expense, but without additional consideration to us or them, all acts reasonably serving to assure that the said inventions and discoveries, the said patent applications, and the said Letters Patent shall be held and enjoyed by Assignee as fully and entirely as the same could have been held and enjoyed by us, our heirs, legal representatives, and assigns if this assignment had not been made;

and particularly to execute and deliver to Assignee all lawful application documents including petitions, specifications, and oaths, and all assignments, disclaimers, and lawful affidavits in form and substance as may be requested by Assignee; to communicate to Assignee all facts known to us relating to said inventions and discoveries or the history thereof; and to furnish Assignee with any and all documents, photographs, models, samples, and other physical exhibits in our control or in the control of our heirs, legal representatives or assigns which may be useful for establishing the facts of our conceptions, disclosures, and reduction to practice of said inventions and discoveries.

In testimony of which we have executed this Assignment as an instrument under seal on the dates indicated next to our names.

10-8-99
Date

F. Devon Taylor
F. Devon Taylor, Inventor

State of Utah)
)ss.
County of Utah)

On this 8TH day of October, 1999, before me appeared F. Devon Taylor, to me known and known to me to be the person described in and who executed the foregoing instrument, and he acknowledged the same to be his free act and deed.

PAULA N LINDSAY
Notary Public
State of Utah
My Comm. Expires May 20, 2003
[seal]

Paula N Lindsay
Notary Public

10-8-99 — Date

B Dahneke — Bart Dahneke, Inventor

State of Utah)
)ss.
County of Utah)

On this 8th day of October, 1999, before me appeared Bart Dahneke, to me known and known to me to be the person described in and who executed the foregoing instrument, and he acknowledged the same to be his free act and deed.

ANGELA ASHMAN
Notary Public
State of Utah
My Comm. Expires Jun 12, 2001
122 East 1700 South MS-121 Provo, UT 84606
[seal]

Notary Public

8 Oct 99 — Date

Dale J Bethers — Dale J Bethers, Inventor

State of Utah)
)ss.
County of Utah)

On this 8th day of October, 1999, before me appeared Dale J Bethers, to me known and known to me to be the person described in and who executed the foregoing instrument, and he acknowledged the same to be his free act and deed.

PAULA N LINDSAY
Notary Public
State of Utah
My Comm. Expires May 20, 2003
122 E 1700 So Provo UT 84606
[seal]

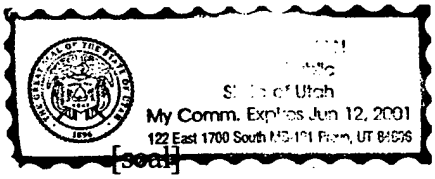
Notary Public

10/13/99
Date

Brad P. Christensen, Inventor

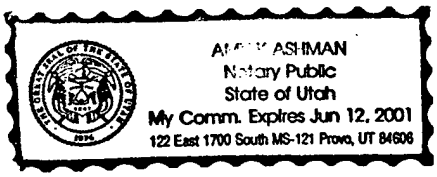
State of Utah)
)ss.
County of Utah)

On this 13th day of October, 1999, before me appeared Brad P. Christensen, to me known and known to me to be the person described in and who executed the foregoing instrument, and he acknowledged the same to be his free act and deed.



[seal]

Notary Public



112024-0051
CJB
n/a 9/27/99 - Msg Parts
CU Msg Parts 10/24/99
Msg Parts 11/29/99

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO./TITLE
09/390,954	09/07/99	TAYLOR	F 112024-0051

0222/0924

CHARLES J BARBAS
CESARI AND MCKENNA
30 ROWES WHARF
BOSTON MA 02110

SEP 27 1999

NOT ASSIGNED

2761

DATE MAILED: 09/24/99

NOTICE TO FILE MISSING PARTS OF APPLICATION
Filing Date Granted

An Application Number and Filing Date have been assigned to this application. The items indicated below, however, are missing. Applicant is given TWO MONTHS FROM THE DATE OF THIS NOTICE within which to file all required items and pay fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a). **If any of items 1 or 3 through 5 are indicated as missing, the SURCHARGE set forth in 37 CFR 1.16(e) of ☐ $65.00 for a small entity in compliance with 37 CFR 1.27, or ☐ $130.00 for a non-small entity, must also be timely submitted in reply to this NOTICE to avoid abandonment.**

If all required items on this form are filed within the period set above, the total amount owed by applicant as a ☐ small entity (statement filed) ☐ non-small entity is $ 890.00.

☑ 1. The statutory basic filing fee is:
- ☑ missing.
- ☐ insufficient.

Applicant must submit $ 760.00 to complete the basic filing fee and/or file a small entity statement claiming such status (37 CFR 1.27).

☐ 2. Additional claim fees of $_____, including any multiple dependent claim fees, are required.

$_____ for _____ independent claims over 3.

$_____ for _____ dependent claims over 20.

$_____ for multiple dependent claim surcharge.

Applicant must either submit the additional claim fees or cancel additional claims for which fees are due.

☑ 3. The oath or declaration:
- ☑ is missing or unexecuted.
- ☐ does not cover the newly submitted items.
- ☐ does not identify the application to which it applies.
- ☐ does not include the city and state or foreign country of applicant's residence.

An oath or declaration in compliance with 37 CFR 1. 63, including residence information and identifying the application by the above Application Number and Filing Date is required.

☐ 4. The signature(s) to the oath or declaration is/are by a person other than inventor or person qualified under 37 CFR 1.42, 1.43 or 1.47.
A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.

☐ 5. The signature of the following joint inventor(s) is missing from the oath or declaration:

_____

An oath or declaration in compliance with 37 CFR 1.63 listing the names of all inventors and signed by the omitted inventor(s), identifying this application by the above Application Number and Filing Date, is required.

☐ 6. A $50.00 processing fee is required since your check was returned without payment (37 CFR 1.21(m)).

☐ 7. Your filing receipt was mailed in error because your check was returned without payment.

☐ 8. The application does not comply with the Sequence Rules.
See attached "Notice to Comply with Sequence Rules 37 CFR 1.821-1.825."

☐ 9. OTHER: _____

Direct the reply and any questions about this notice to "Attention: Box Missing Parts."

A copy of this notice MUST be returned with the reply.

Customer Service Center
Initial Patent Examination Division (703) 308-1202

PART 1 - ATTORNEY/APPLICANT COPY

FORM PTO-1533 (REV.9-97)

PTO-103X
(Rev. 6-99)

FILING RECEIPT

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTORNEY DOCKET NO.	DRWGS	TOT CL	IND CL
09/390,954	09/07/99	2761	$0.00	112024-0051	3	17	3

CHARLES J BARBAS
CESARI AND MCKENNA
30 ROWES WHARF
BOSTON MA 02110

CJB
11/A 9/27/99

SEP 27 1999

Receipt

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts of Application" ("Missing Parts Notice") in this application, please submit any corrections to this Filing Receipt with your reply to the "Missing Parts Notice." When the PTO processes the reply to the "Missing Parts Notice," the PTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s) F. DEVON TAYLOR.

IF REQUIRED, FOREIGN FILING LICENSE GRANTED 09/23/99
TITLE
COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES

PRELIMINARY CLASS: 705

DATA ENTRY BY: DILLON, LAWANDA TEAM: 03 DATE: 09/23/99

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Inventor(s): F. Devon Taylor et al.

File No.: 112024-0051
Serial No.: ~~Not Yet Assigned~~
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In Re The Application of: F. Devon Taylor et al.	)	
Serial No.: Not Yet Assigned	)	Examiner: Not Yet Assigned
Filed: September 7, 1999	)	
For: COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES	)	Art Unit: Not Yet Assigned

Cesari and McKenna, LLP
30 Rowes Wharf
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September 7, 1999

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Attorney Docket No.	112024-0051
First Inventor or Application Identifier	F. Devon Taylor et al.
Title	COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES
Express Mail Label No.	EL024424715US

APPLICATION ELEMENTS
See MPEP chapter 600 concerning utility application contents

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- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings *(if filed)*
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

3. ☒ Drawing(s) [Total Sheets 3]
4. Oath or Declaration [Total Pages]
a. ☐ Newly executed (original copy)
b. ☐ Copy from a prior application (37 C.F.R. § 1.63(d))
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[Note Box 5 below]
DELETION OF INVENTOR(S)
☐ Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference *(useable if Box 4b is checked)*
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference therein

6. ☐ Microfiche Computer Program *(Appendix)*
7. Nucleotide and/or Amino Acid Sequence Sequence Submission
(if applicable, all necessary)
a. ☐ Computer Readable Copy
b. ☐ Paper Copy (Identical to computer copy)
c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. ☐ Assignment Papers (cover sheet & document(s))
9. ☐ 37 C.F.R.§3.73(b) Statement *(when there is an assignee)* ☐ Power of Attorney
10. ☐ English Translation Document *(if applicable)*
11. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
12. ☐ Preliminary Amendment
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IDR-379/112024-0051

UNITED STATES PATENT APPLICATION

of

F. Devon Taylor

Bart Dahneke

Dale J. Bethers

and

Brad P. Christensen

for a

COMMUNICATION INTERFACE FOR PROVIDING ACCOUNTING SUPPORT FOR PRINT SERVICES

FIELD OF THE INVENTION

The invention relates generally to print services that are available on a computer network and, more specifically, to a method and apparatus for efficiently providing accounting support for such network-based print services.

BACKGROUND OF THE INVENTION

Computer hardware is becoming increasingly distributed and remote, resulting in networks of computers for providing services and solving problems in concert rather than as stand-alone systems. Although such distributed services networks generally facilitate problem solving, they also increase the need for flexibility and functionality in software executing on the computers. An example of a distributed services computer network is a client-server system comprising a collection of client nodes, e.g., workstations or personal computers, that communicate over a network with various server nodes. The servers are typically computers having hardware and software elements that provide a set of services, or operations, for use by the clients in order to increase the efficiency of their operations.

Several types of networks, including local area networks (LANs), may be employed in the client-server system. A LAN is a limited area network that typically consists of a transmission medium for interconnecting the client and server nodes. The nodes coupled to the network typically communicate by exchanging discrete frames or packets of data according to predefined protocols. In this context, a protocol consists of a set of rules defining how the nodes interact with each other. Communication in the client-server system typically takes the form of frame or packet exchanges, wherein the clients send requests to the servers, which perform their services and communicate results back to the clients. A typical service provided by a server is a conventional queue-based printing service.

Queue-based print services are generally based upon the creation and linking of three components: a printer, print queues and a print server. Setting up a queue-based printing system is a complicated task requiring a user on a client node to install a printer driver and then "capture" a port to a printer. Broadly stated, software executing on the client submits a print job into a first queue on the print server where an accounting service retrieves the job to perform bill processing. Thereafter, the job is loaded into a second queue where it is stored while waiting to be serviced by the printer. The accounting service logic executing on the print server examines the data stream of the print job to determine resource consumption for billing purposes (e.g., billing for sheets of paper or data printed).

While this complicated queue-based printing system works well, it is rather time consuming and inefficient in terms of resource consumption. Specifically, the accounting service software on the print server must examine the data stream of a print job in order to perform the appropriate accounting function. In addition, queue-based printing requires insertion and retrieval of print jobs to and from a plurality of queue structures. Such an approach is inefficient in terms of the use of client and server resources since read and write operations associated with the various data structures consume those resources.

SUMMARY OF THE INVENTION

The invention comprises an application-to-application communication interface between an accounting service application and a printer agent application residing on a computer network. The interface is preferably embodied as novel application programming interface (API) functions or calls between the applications that provide accounting support for print services, including tracking the production of print jobs and the resources consumed by those jobs. The accounting support services provided by the novel API communication interface facilitate computing of charges by the accounting application for print services and materials used by print clients.

In the illustrative embodiment, the accounting application and printer agent preferably reside on a print server of the network; however, in an alternate embodiment, each

application may reside on a separate network entity. The accounting application registers with the printer agent to provide the agent with, e.g., addresses for the API print service calls. A print client on the network submits print jobs directly to the printer agent rather than into queues as in the conventional queue-based printing system. The novel APIs allow the accounting service application to discover and obtain information about the print jobs as they are created and processed by the printer agent. Such information enables the accounting application to leverage use of functions directed to acquiring and setting attributes for these print jobs, thereby extending the utility of those functions for the accounting application.

According to the invention, the printer agent employs the novel print service APIs (i) before a print job is created, (ii) after the print job is created and (iii) when processing of the print job is complete. Broadly stated, the first print service API is called by the printer agent when the client submits a request to create a print job. The accounting application can either reject the print job, accept the print job or instruct the printer agent to put an accounting hold on the print job. In the latter case, the job does not print until the accounting application removes the hold.

The second print service API is called by the printer agent when the creation of the print job is complete, but before the job is scheduled for printing. This function call is similar to the first API, with the exception that it includes a job identifier so that the accounting application can evaluate and act upon the attributes of the job, and a path to a file directory where corresponding print data is stored. As with the first API, the accounting application can reject the print job, accept the job or instruct the printer agent to put an accounting hold on the job. The third print service API is called by the printer agent when processing and/or printing of the print job is completed. The third function provides a job identifier and a file path to a corresponding document data file associated with the job so that the accounting application can evaluate the completed job and perform any appropriate accounting operations.

Advantageously, the inventive print service APIs provide an extensive set of information about print jobs that is generally more complete than that provided by conventional print systems. In particular, the novel communication interface provides develop-

ers with information needed to render decisions about print jobs as requests are received by the printer agent and as print jobs are created and processed.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and further advantages of the invention may be better understood by referring to the following description in conjunction with the accompanying drawings in which like reference numerals indicate identical or functionally similar elements:

Fig. 1 is a block diagram of a computer network including a collection of interconnected client and server computers;

Fig. 2 is a schematic block diagram of a client-server system that may be advantageously used with the present invention; and

Fig. 3 is a highly schematized diagram of software components of the server computer that may be advantageously used with the present invention.

DETAILED DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

Fig. 1 is a schematic block diagram of a network 100 comprising a collection of interconnected computers 110, 300. Each computer typically comprises a central processing unit (CPU) 102, a memory unit 104 and an input/output (I/O) unit 106 interconnected by a system bus 108. The memory unit 104 may comprise storage locations typically composed of, e.g., random access memory devices, which are addressable by the CPU 102 and the I/O unit 106. An operating system, portions of which are typically resident in memory and executed by the CPU, functionally organizes the computer by, *inter alia*, invoking network operations in support of application programs executing on the CPU. It will be apparent to those skilled in the art that other processor and memory means, including various computer readable media, may be used for storing and executing program instructions pertaining to the inventive communication interface and calls described herein.

The I/O unit 106 connects the computer to a transmission medium 150 and to a mass storage device, such as data store 115, and/or a conventional printer 116. The data

store 115 may comprise at least one disk configured as a database for storing information relating to, e.g., objects that represent components of a printing architecture that may advantageously used with the present invention. Typically the I/O unit 106 receives information, such as control and data signals, from a keyboard or mouse (not shown) and provides that information to the CPU 102 for storage/retrieval of information from the data store 115, for output to the printer 116 or for transfer over the transmission medium 150.

In the illustrative embodiment, the network 100 is organized in accordance with a client-server architecture wherein computers 110 may comprise personal computers or workstations configured as "clients" for interaction with users and computers 300 are configured as "servers" that perform services as directed by the clients. For example, the server 300 may be configured as a print server having a locally-attached printer 116. In another embodiment of the invention, the printer 116 may be directly-attached to the transmission medium 150.

The transmission medium 150 may comprise a local area network (LAN) or collection of LANs cooperating to form a larger network, such as the Internet. Collectively, the LANs may be configured to form a topology of internetworked computers that communicate by exchanging data packets according to a predefined set of protocols. Communication among the computers may be effected by reliable communication over Transmission Control Protocols/Internet Protocol (TCP/IP) sessions. It should be noted that other conventional techniques and protocols, such as Remote Procedure Calls (RPC) or the Internet Packet Exchange (IPX) protocol, may be advantageously used with the present invention.

Fig. 2 is a schematic block diagram of a client-server system 200 that may be advantageously used with the present invention wherein the client node 110 is coupled to the server node 300 by way of transmission medium 150. Resident in each node are application programs 212, 262 and operating systems 220, 270 configured to provide a communication function, such as a RPC function. The RPC function establishes a session between the client and server nodes for execution of a specific service. The RPC is typically embedded in software programs to make a remote call appear "local" to the nodes. Client-server communication thus takes the form of procedure calls utilizing local

stub procedures. Specifically, the applications interact with stub procedure software 222, 272 by exchanging parameter requests. Each stub procedure operates to arrange, i.e., "flatten", the parameters into a predetermined message format according to the computer type.

The RPC function initiated by the client application 212 may transfer data or request the server application 262 to perform an operation, such as a print operation. Transport entities 224, 274 are also provided as software processes within transport layers of protocol stacks resident in the nodes. The entity 224 interacts with the stub procedure 222 to receive the message, format it into a packet and pass it to a network adapter 216 for transmission over the medium 150. The transport entities 224, 274 provide a reliable, cost-effective data transport between the client and server, independent of the physical network medium. An example of such reliable transport is the conventional TCP transport mechanism.

When the packet arrives at the server 300, a network adapter 276 passes it to the transport entity 274 and onto the server stub procedure 272, which unflattens the parameters. The stub procedure then calls the server application 262 and passes the parameters in a conventional manner. After completing its work, the application 262 "returns" in a manner that is conventional for local procedure calls, e.g., by returning a result. The stub procedure 272 flattens the result into a message and passes it to the transport entity 274, where a reply packet is formed and transferred to the client 110 over the network. Upon receiving the reply packet, the transport entity 224 passes it to the client stub procedure 222 for unflattening. Finally, the stub procedure returns the reply parameters to the client application 212.

Fig. 3 is a highly schematized diagram of software application components of the server 300. These application components generally interact with an operating system, such as the NetWare operating system available from Novell, Inc., to provide a print server configured to provide print services to clients 110 of network 100. The application components include an accounting application 320 and a printer agent application 330, the latter of which embodies the printer, print queue and print server functions required for conventional queue-based printing. In an alternate embodiment, the printer agent 330

may be embedded into a printer station, such as printer 116, arranged to attach directly to the network 100.

The printer agent is a primary component of a printing architecture, such as the Novell Distributed Print Services (NDPS) printing architecture. The components of the NDPS architecture are independent of any single protocol or operating system and, as such, may be ported to different operating environments based upon the International Standards Organization 10175 Document Printing Application standard and Internet Engineering Task Force RFC 1759. The printer agent 330 may be implemented as part of a NDPS manager component of the NDPS architecture; the NDPS manager is preferably a NetWare Loadable Module (NLM) that runs on the NetWare print server. The agent 330 may further be embodied as a software application configured to run in other operating environments, such as Windows NT, Windows 9x, DOS, Unix or Linux, or embedded directly into a printer or print server apparatus.

Other components of the NDPS architecture include a printer device subsystem (PDS), a port handler (PH) and a printer gateway, the latter comprising a software bridge that directly links the printer agent to its printers. The PDS is an NLM that resides on the print server 300 and retrieves printer-specific information for local storage on the server. The PDS is used to create a printer agent 330 for a printer that is not directly attached to the network 100 and for a printer that is directly attached to the network, but that does not include an NDPS gateway. The PH ensures that the PDS can communicate with the printer 116 regardless of the type of physical port or interface being used.

The printer agent 330 is also preferably an NLM that contains information about printers it represents. Such information, including a printer's network address, name, status or other characteristics can be communicated to an NDPS client and managed by a system administrator. The printer agent 330 supports central management of printers on the network 100, as well as the creation and management of print jobs. In essence, the printer agent is a liaison between an NDPS client and printer, so that each print job goes from the client 110 to the printer 116 by way of the printer agent 330.

The printer agent 330 preferably utilizes the RPC protocol to receive print job requests from and send replies to the NDPS client 110. As with the print server 300, the

client 110 may operate with a variety of operating systems, including Windows NT, Windows 9x, DOS, Unix, Linux or Apple OS. Notwithstanding the actual system platform, the operating environment of the client should include an NDPS library or similar facility that provides the required NDPS support for the client. As noted, the NDPS architecture is preferably protocol-independent and, thus, may support other protocols, such as the Hypertext Transfer Protocol (HTTP), the LPR protocol or the Internet Printing Protocol (IPP), instead of RPC.

According to the invention, an application-to-application communication interface is provided between the accounting application 320 and printer agent 330. The interface is preferably embodied as novel application programming interface (API) functions or calls between the applications that provide accounting support for print services, including tracking the production of print jobs and the resources consumed by those jobs. Print jobs are represented in the NDPS architecture as objects having attributes that describe the characteristics of those jobs, such as the number of printed pages. Print drivers capable of specifying those characteristics enable accounting services based on that information. The accounting support services provided by the novel API communication interface facilitate computing of charges by the accounting application 320 for print services and materials used by print clients 110.

The accounting application 320 registers with the printer agent 330 via a conventional interface to provide the agent with, e.g., addresses for the API printer service calls. This conventional interface further allows an external application, such as a scheduler or gateway, to bind itself to the printer agent. Registering of the accounting application service enables the printer agent to know where to call into the accounting service for the novel API functions. As described herein, a callback interface 322 provides callbacks from the printer agent to the accounting service when a job occurs.

Further to the invention, a print client 110 submits print jobs directly to the printer agent 330 rather than into queues as in the conventional queue-based printing system. The novel APIs allow the accounting service application 320 to discover and obtain information about the print jobs as they are created and processed by the printer agent. Such information enables the accounting application to leverage use of conventional

functions directed to acquiring and setting attributes for these print jobs, thereby extending the utility of those conventional functions for the accounting application.

The accounting application 320 may also be provided as an NLM on the NetWare print server 300. There are preferably two ways to launch the accounting application: (i) from a command line of the server and (ii) by populating a printer object that represents the printer agent with the command line information. An example of the command line information is

Load Accounting.NLM PA=PAName <optional parameters>

where the ***Accounting.NLM*** is the name of the accounting program and ***PAName*** is the name of the binding printer agent. A ***ndps-att-accounting-exec-and-params*** attribute of the printer object that represents the printer agent in the database 115, such as the NDPS Managed Object Database, can be populated with the command line information. When activated, the printer agent 330 launches the accounting application 330 using the information stored in this attribute.

The accounting application 320 binds to the printer agent 330 based on the name that it gets from the command line by calling the function ***NDPSJPMComm*** in the printer agent. This function is preferably exported by the printer agent so it can be found by any NLM that needs it. The function prototype is:

nint NDPSJPMComm(nint cmdCode, void *bufferPtr)

The ***cmdCode*** parameter contains an opcode indicating the operation to be performed by the printer agent; for example, the opcode is *JPM_OP_BIND_TO_PA*. The ***bufferPtr*** parameter points to a BindStruct structure:

```
typedef struct
{
        nint            majorVersion;
        nint            minorVersion;
        nint            objType;
        pnuint16                paNamePtr;
        CallBack        callBackFnPtr;
        nint            handle;
} BindStruct;
```

The ***objType*** field of the BindStruct structure is populated with the value *OBJ_TYPE_ACCOUNTING* that informs the printer agent that the application requesting to bind is an accounting service. The ***paNamePtr*** points to the name of the printer agent 330 to which the accounting application is to bind. The ***callBackFnPtr*** contains the address of the function that the printer agent calls to unbind with the accounting application. The ***handle*** field contains a unique integer value included in any calls from the printer agent 330 to the accounting application 320. This handle identifies the calling printer agent to an accounting service that may be bound to multiple printer agents.

After setting the appropriate information from the BindStruct structure, the printer agent returns the same structure to the accounting application with the following fields modified: ***callBackFnPtr*** is set to the address of the printer agent callback function (NDPSJPMComm) and ***handle*** is set to the handle that the accounting application includes with calls to the NDPSJPMComm function to identify the intended printer agent for the request.

The accounting application 320 registers one or more of three function pointers with the printer agent 330 by calling the callback function ***NDPSJPMComm*** in the printer agent 330. The ***cmdCode*** parameter for this operation is preferably *JPM_OP_REG_ACCOUNTING_FN_PTRS* and the ***bufferPtr*** points to a RegisterAccountingFnPtrs structure:

```
typedef nint (*AccountingNoPathFnPtr)(void);
typedef nint (*AccountingWithPathFnPtr)(nint jobId, nuint8 *path);

typedef struct
{
        nint                    paHandle;
        AccountingNoPathFnPtr       callApprovalBeforeDataFnPtr;
        AccountingWithPathFnPtr     callApprovalWithDataFnPtr;
        AccountingWithPathFnPtr     callBillingFnPtr;
        void                    reserved1;
        void                    reserved2;
} RegisterAccountingFnPtrs;
```

According to the invention, the printer agent employs the novel print service APIs (i) before a print job is created, (ii) after the print job is created and (iii) when processing

of the print job is complete. Broadly stated, the first print service API is called by the printer agent when the client submits a request to create a print job. The accounting application can either reject the print job, accept the print job or instruct the printer agent to put an accounting hold on the print job. In the latter case, the job does not print until the accounting application removes the hold.

The second print service API is called by the printer agent when the creation of the print job is complete, but before the job is scheduled for printing. This function call is similar to the first API, with the exception that it includes a job identifier so that the accounting application can evaluate and act upon the attributes of the job, and a path to a file directory where corresponding print data is stored. As with the first API, the accounting application can reject the print job, accept the job or instruct the printer agent to put an accounting hold on the job. The third print service API is called by the printer agent when processing and/or printing of the print job is completed. The third function provides a job identifier and a file path to a corresponding document data file associated with the job so that the accounting application can evaluate the completed job and perform any appropriate accounting operations.

As print jobs are submitted to the printer agent 330 from the NDPS client 110, the agent calls each of the three (3) novel API print service functions (assuming the respective function is registered):

1. When a print request is received, the printer agent calls the ***callApprovalBeforeDataFnPtr*** function before the print job is created.

(a) If the accounting application 320 returns a value greater than zero, the printer agent 330 creates the print job with an accounting hold. The print job will not print until the accounting application or some other action removes the hold. This permits the evaluation and/or manipulation of the job after it is created and before it is processed.

(b) If the accounting application returns a value less than zero, the printer agent rejects the print job and returns the following error code to the client 110: *NWDP_SERVICE_ACCTG_SERVICE_ERR.*

(c) If the accounting application returns a value of zero, the printer agent creates the print job without applying any change to the job.

2. When the printer agent 330 finishes creating the print job, it calls the ***callApprovalWithDataFnPtr*** before passing the job to the scheduler (not shown). The parameters for this call include a job identifier and a path to a file directory where the document print data is stored. The accounting application 320 can then perform any of the following steps:

(a) Using the job identifier and the document data file path, it can examine the print data.

(b) Using the job identifier, it can submit requests to the printer agent to query and modify attributes of Job and Document objects for the respective print job through the NDPSJPMCom interface 332.

(c) Using the information obtained in Steps a and b, it can generate accounting and/or billing information. This information can be stored in the Job object or can be handled separately by the accounting application.

3. When the printer agent 330 finishes processing the print job, it calls the ***callBillingFnPtr***. The parameters for this call also include the job identifier and path to the file directory where the document print data is stored. The accounting application 320 can perform any of the following steps:

(a) Using the job identifier and the document data file path, it can examine the print data.

(b) Using the job identifier, it can submit requests to the printer agent to query and modify attributes of the Job and Document objects for the respective print job through the NDPSJPMCom interface 332. In the case of a printer agent that supports a fairly capable printer, the Job and Document objects contain useful information about the processed job, including the number of sheets of paper consumed, the bytes processed, etc.

(c) Using the information obtained in Steps a and b, it can generate accounting and/or billing information. This information can be stored in the Job object or can be handled separately by the accounting application.

When the printer agent 330 "shuts down", it issues an UnBind request to the accounting service application 320. Both applications "clean up" their respective association information so that it is safe for either application to unload. The accounting service can also initiate an UnBind request.

In summary, the interaction between the printer agent 330 and accounting application 320 are schematically shown by Steps A-D in Fig. 3. In Step (A) the accounting application 320 calls the printer agent 330 to bind through the NDPSJPMCom interface 332. The printer agent 330 returns a handle for subsequent calls. The accounting application 320 also calls the printer agent 330 to register one or more of the three novel API accounting functions. The accounting application can further call the printer agent to unbind through the NDPSJPMCom interface 332. In Step (B), the printer agent 330 calls the accounting application 320 through the callback interface 322 to initiate an unbind. In Step (C), the printer agent calls the registered API accounting functions as print jobs are created and processed. Finally, in Step (D), the accounting application 320 can inspect the document print data, if necessary, that is stored on the data store 115.

Advantageously, the inventive print service accounting APIs provide an extensive set of information about print jobs that is generally more complete than that provided by conventional print systems. In particular, the novel communication interface provides developers with information needed to render decisions about print jobs as requests are received by the printer agent and as print jobs are created and processed.

The foregoing description has been directed to specific embodiments of this invention. It will be apparent, however, that other variations and modifications may be made to the described embodiments, with the attainment of some or all of their advantages. Therefore, it is the object of the appended claims to cover all such variations and modifications as come within the true spirit and scope of the invention.

What is claimed is:

CLAIMS

1. A communication interface between an accounting application and a printer agent application executing on a computer network, the interface comprising:

application programming interface (API) functions exchanged between the applications that provide accounting support for print services directed to a print job received by the printer agent, the accounting support services including tracking production of the print job and computer network resources consumed by the job, the API functions comprising a first print service API that is called by the printer agent before the print job is created and that enables the accounting application to one of reject the print job, accept the print job and instruct the printer agent to place an accounting hold on the print job.

2. The communication interface of Claim 1 wherein the API functions further comprise a second print service API that is called by the printer agent after the print job is created and before the job is scheduled for processing, the second print service API including (i) a job identifier for use by the accounting application to evaluate and act upon attributes of the job and (ii) a file path to a document data file associated with the job.

3. The communication interface of Claim 2 wherein the API functions further comprise a third print service API that is called by the printer agent when processing of the print job is complete, the third print service API including the job identifier and the file path to the document data file associated with the job, the file path used by the accounting application to evaluate the completed job and perform accounting operations.

4. The communication interface of Claim 3 wherein the accounting application and printer agent execute on a print server of the computer network, and wherein the API functions facilitate computing of charges by the accounting application for print services and materials used by a print client of the computer network.

5. A method for communicating between applications executing on a computer network, the method comprising the steps of:

providing an accounting application configured to run on a first device coupled to the network;

providing a printer agent application configured to run on a second device coupled to the network, the printer agent representing a printer on the network and containing information about the printer; and

exchanging application programming interface (API) function calls between the applications that provide accounting support for print services relating to a print job received by the printer agent and directed to the printer, the accounting support services including tracking production of the print job and resources consumed by the job.

6. The method of Claim 5 wherein the first device is a computer and the second device is the printer, and wherein information contained in the printer agent comprises a network address of the printer and a status of the printer.

7. The method of Claim 5 wherein the step of exchanging comprises the step of calling a first print service API at the printer agent before the print job is created, the first print service API enabling the accounting application to one of reject the print job, accept the print job and instruct the printer agent to place an accounting hold on the print job.

8. The method of Claim 7 wherein the step of exchanging further comprises the step of calling a second print service API at the printer agent after the print job is created and before the job is scheduled for processing, the second print service API including (i) a job identifier for use by the accounting application to evaluate and act upon attributes of the job and (ii) a file path to a document data file associated with the job.

9. The method of Claim 8 wherein the step of exchanging further comprises the step of calling a third print service API at the printer agent when processing of the print job is complete, the third print service API including the job identifier and the file path to the

document data file associated with the job, the file path used by the accounting application to evaluate the completed job and perform accounting operations.

10. The method of Claim 9 further comprising the step of registering the accounting application with the printer agent to provide the printer agent with addresses for the API print service calls.

11. The method of Claim 10 further comprising the steps of, wherein the first and second devices comprise a single print server:

submitting the print job from a print client on the network to the printer agent;

obtaining information about the print job at the accounting application using the API function calls; and

using the obtained information to leverage functions directed to acquiring and setting attributes for the print job, thereby extending the utility of the attribute functions for the accounting application.

12. A computer readable medium containing executable program instructions for communicating between applications executing on a computer of a network, the executable program instructions comprising program instructions for:

configuring an accounting application to run on the computer;

configuring a printer agent application to run on the computer, the printer agent representing a printer on the network and containing information about the printer; and

exchanging application programming interface (API) function calls between the applications that provide accounting support for print services relating to a print job received by the printer agent and directed to the printer, the accounting support services including tracking production of the print job and computer resources consumed by the job.

13. The computer readable medium of Claim 12 wherein the program instruction for exchanging comprises the program instruction for calling a first print service API at the

printer agent before the print job is created, the first print service API enabling the accounting application to one of reject the print job, accept the print job and instruct the printer agent to place an accounting hold on the print job.

14. The computer readable medium of Claim 13 wherein the program instruction for exchanging further comprises the program instruction for calling a second print service API at the printer agent after the print job is created and before the job is scheduled for processing, the second print service API including (i) a job identifier for use by the accounting application to evaluate and act upon attributes of the job and (ii) a file path to a document data file associated with the job.

15. The computer readable medium of Claim 14 wherein the program instruction for exchanging further comprises the program instruction for calling a third print service API at the printer agent when processing of the print job is complete, the third print service API including the job identifier and the file path to the document data file associated with the job, the file path used by the accounting application to evaluate the completed job and perform accounting operations.

16. The computer readable medium of Claim 15 further comprising the program instruction for registering the accounting application with the printer agent to provide the printer agent with addresses for the API print service calls.

17. The computer readable medium of Claim 16 further comprising program instructions for, wherein the computer is a print server:

submitting the print job from a print client on the network to the printer agent;

obtaining information about the print job at the accounting application using the API function calls; and

using the obtained information to leverage functions directed to acquiring and setting attributes for the print job, thereby extending the utility of the attribute functions for the accounting application.

ABSTRACT OF THE DISCLOSURE

An application-to-application communication interface between an accounting service application and a printer agent application resides on a computer network. The interface is embodied as novel application programming interface (API) functions or calls between the applications that provide accounting support for print services, including tracking the production of print jobs and the resources consumed by those jobs. The accounting support services provided by the novel API communication interface facilitate computing of charges by the accounting application for print services and materials used by print clients.

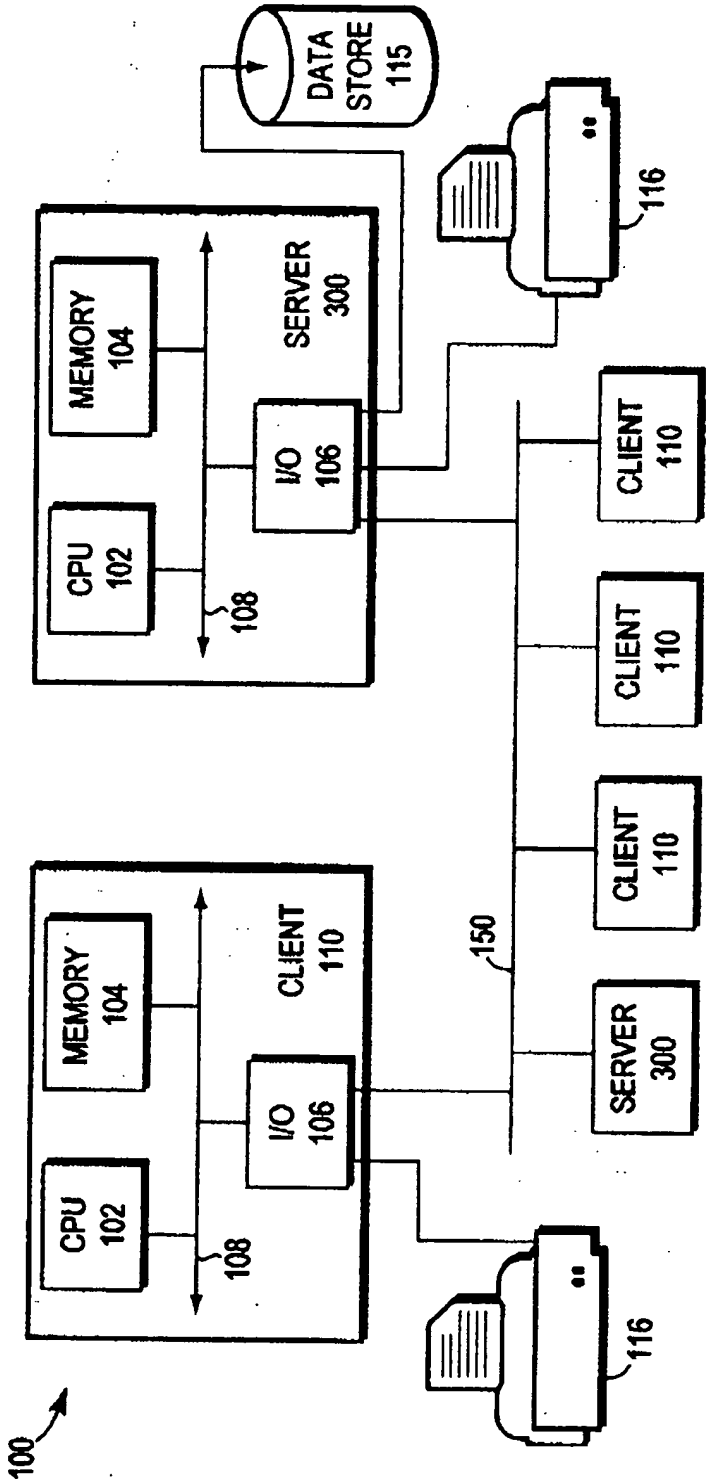
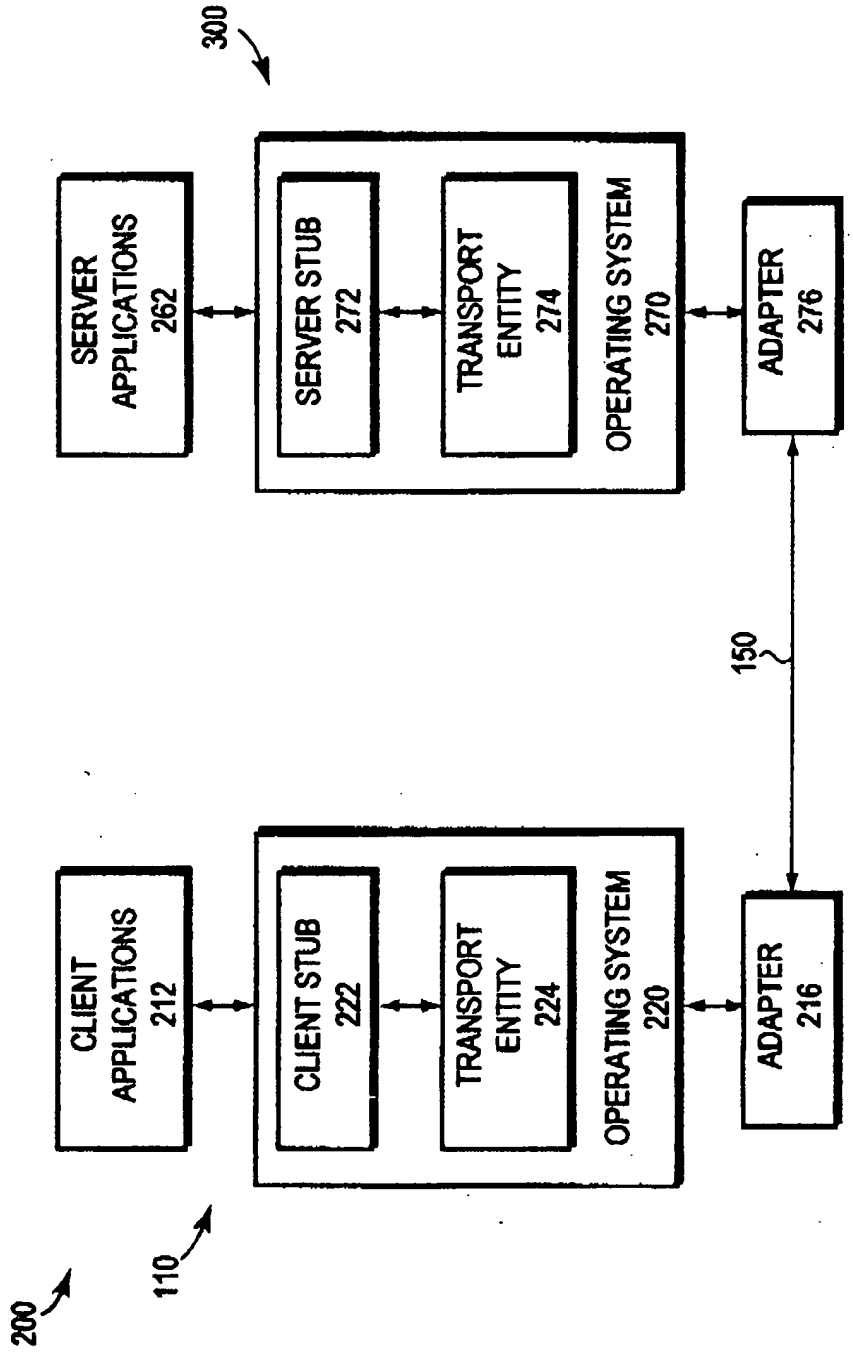

DATA STORE 115
116
SERVER 300
MEMORY 104
I/O 106
CPU 102
108
CLIENT 110
CLIENT 110
CLIENT 110
CLIENT 110
150
SERVER 300
MEMORY 104
I/O 106
CPU 102
108
CLIENT 110
116
100

FIG. 1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SERVER APPLICATIONS 262
SERVER STUB 272
TRANSPORT ENTITY 274
OPERATING SYSTEM 270
ADAPTER 276
150
CLIENT APPLICATIONS 212
CLIENT STUB 222
TRANSPORT ENTITY 224
OPERATING SYSTEM 220
ADAPTER 216
110
200

FIG. 2

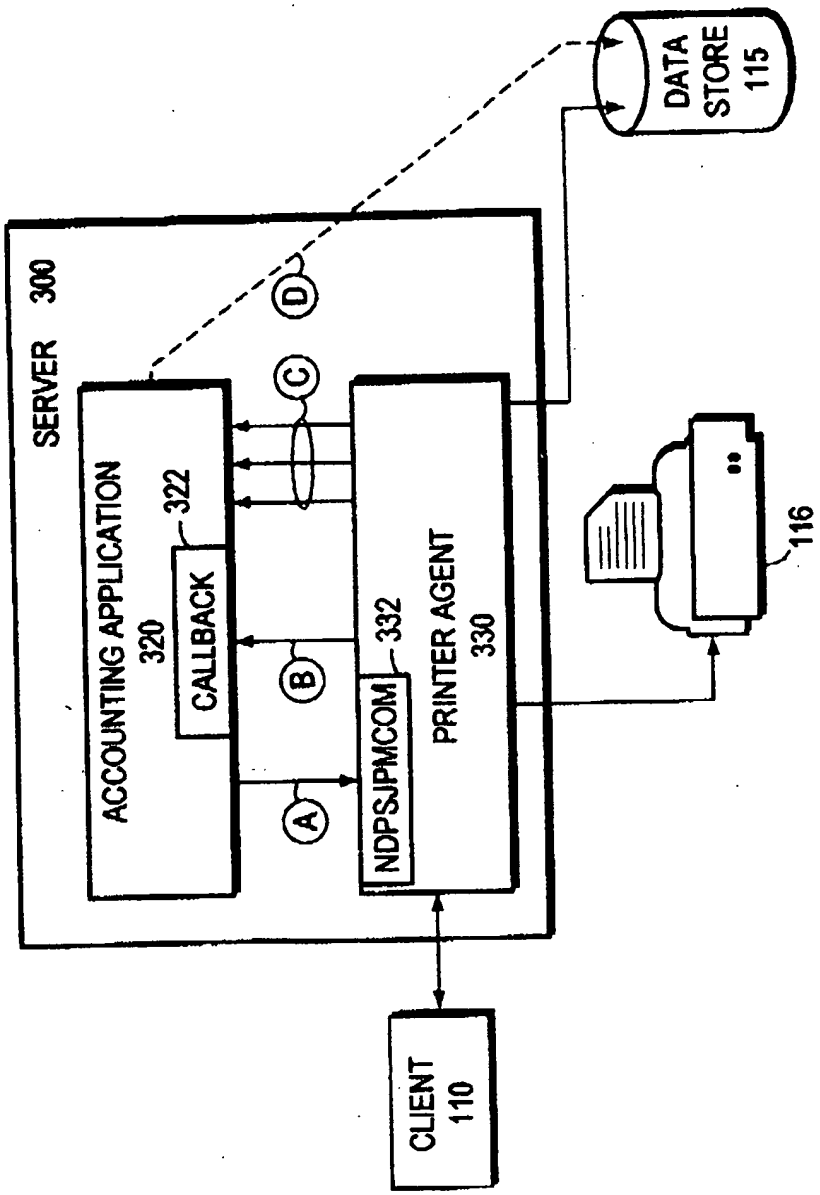
DATA STORE 115
SERVER 300
ACCOUNTING APPLICATION 320
322
CALLBACK
NDPSJPMCOM 332
PRINTER AGENT 330
A
B
C
D
116
CLIENT 110

FIG. 3